On the State of Fluidized Bed

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tion produced in air by the reaction $_7N^{14}(n, p)_6C^{14}$ and determined the Q-value of the reaction as 0.606±0.005 Mev assuming the proportionality between the ionization and the energy. Then, the Q-value of this reaction has been determined to be 0.626 Mev from several well-founded bases.

In the present work, we have redetermined the total ionization produced in air by this reaction. If we assume the proportionality between the ionization and the energy, the present result also gives the Q-value of 0.609 Mev which accurately agrees with the previous result. We have thus ascertained that our experiments were not in error. So the origin of the discrepancy between our result of 0.609 Mev and the accepted nominal value of 0.626 Mev must be attributed to the nature of the relationship between the ionization and the energy for protons in air.

On the bases of the present result and our results on the ionization by alpha-particles in air (this Bull. **26**, 62 (1951)), some preliminary arguments have been made on the relationship between the ionization and the energy for protons in air.

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8. On the State of Fluidized Bed

Junji Furukawa and *Tsutomu Oumae*

(Oda Laboratory)

The fluidization of solid particles accompanies slugging and eruption, which we examined photographically by using a box-type vessel with parallel glass-plate windows on both sides.

An abnormal fluidized state, i. e. the slugging is caused by the different buoyance of foams: the smaller foam goes up more slowly than the larger one, and the foam grows larger by joining together until their diameter reaches to the magnitude of the vessel, the so-called slugging state.

This phenomenon is similar to the continuous foaming in liquid. The net-plates of moderate mesh in the vessel, through which particles are capable to pass freely, are effective to prevent the slugging.

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9. Study on High Dielectric Constant Ceramics. (XIII)

Analytical Research on Coupled Vibration

Kiyoshi Abe, *Tetsuro Tanaka* and *Koji Uo*

(Abe Laboatory)

Mathematical analysis about the mechanical vibration of a rectangular